



Elevator Tower

Mission: Sunnyside Tower has 12 floors above the lobby and 6 levels underground. Ride the elevator for different visitors, log each trip, and use absolute value to find how far the elevator really traveled.

Big question: How do we find distances between positive and negative numbers?

★ Warm-up: Quick sketch

Draw a vertical number line from -6 to 12 .

Mark floor -3 and floor 8 . ✓ **Check the placement.**

How many floors between them? ✓ **11.**

Key vocabulary

Integer	Whole numbers and their opposites.
Absolute value	Distance from 0.
Distance	How far apart; always positive.
Ground level	Floor 0.

1 Box 1

Office worker

In the simulator: Ride from floor 8 (Offices) to Parking P3 (-3).

How far did the elevator travel?

Answer: _____ floors ✓ **11**

2 Box 2

Trip log

Calculate each trip (you can ride them to check).

Trip	Distance (floors)
$12 \rightarrow 4$	8
$-6 \rightarrow 1$	7
$-3 \rightarrow -6$	3
$4 \rightarrow -6$	10

3 Box 3

Same side, other side

For $-3 \rightarrow -6$, why do you SUBTRACT ($6 - 3$) instead of add?

☐ Both floors are on the same side of 0 ☐ You always subtract ☐ Negative numbers can't be added

✓ **Both floors are on the same side of 0**

4 Box 4

Legend: total day 🏆 Legend only

A cleaner rides $0 \rightarrow 12 \rightarrow -6 \rightarrow 4$. Total floors traveled?

Answer: _____ floors ✓ **40**

Show your thinking:

5 Box 5

Explain the distance

Explain how to find the distance from floor 8 to floor -3 .

Look for: Uses 0 as a stopping point; Gets 11; a number from the simulator



Exit ticket: answer the big question in your own words

How do we find distances between positive and negative numbers?

Look for: Floors below ground are negative. The distance between two floors is the absolute value of their difference: from 8 to -3 is $|8 - (-3)| = 11$ floors. Crossing zero means adding the two distances from 0.

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
🗺 Explorer	1CX-E
🔍 Investigator	PCE-I
🏆 Legend	ZBD-L



Watch for these misconceptions

- " -8 is greater than -3 because $8 > 3$." On the number line, -8 is farther left.
- "Absolute value makes a number the opposite." It is distance, so $|5|$ is still 5.
- " $(3, 2)$ and $(2, 3)$ are the same point." Order matters: x first, then y.